

2-2 Linear Equations

2-3 Slope

Linear equation--variables cannot be multiplied together or appear in the denominator; exponent should be one

Graph-line

Standard Form-- $Ax + By = C$, where $A \geq 0$ and A and B are both not zero
 $A, B, C \in \mathbb{Z}$ whose GCF is 1

Slope-intercept form $y = mx + b$

$m \rightarrow \text{slope}$
 $b \rightarrow \text{y-int } (0, b)$

Put the following in standard form:

ex 1:
 $y = 3x - 9$

$$3x - y = 9$$

ex 2:
 $-\frac{2}{3}x = 2y - 1$

$$2x + 6y = 3$$

ex3:
 $8x - 6y + 4 = 0$

$$4x - 3y = -2$$

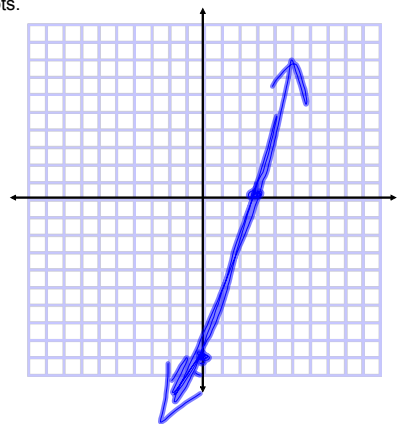
Graph using intercepts.

ex 1

$$3x - y = 9$$

$(0, -9)$

$(3, 0)$



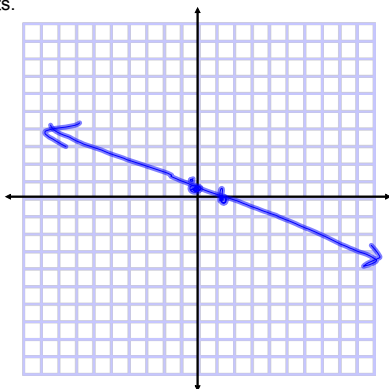
Graph using intercepts.

ex 2

$$2x + 6y = 3$$

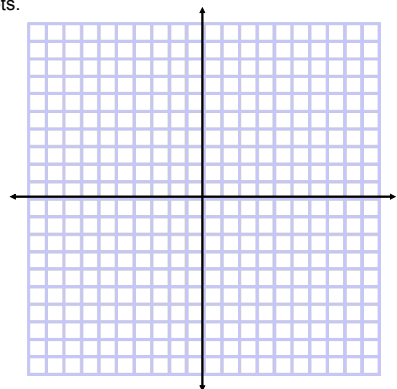
$(0, \frac{1}{2})$

$(\frac{3}{2}, 0)$



Graph using intercepts.

ex 3



How else do you graph?

Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \begin{array}{l} \text{Rise} \\ \hline \text{Run} \end{array} \quad \frac{\Delta y}{\Delta x}$$

Be consistent!

Calculate the slope for:

(1,3) and (-2,-3)

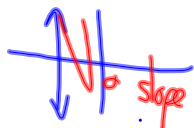
$$m = \frac{3 - (-3)}{1 - (-2)} = \frac{6}{3} = 2$$

Special slopes:

Horizontal Line $m = 0$



Vertical Line undefined
(or no slope)



Graphing:

$$y = \frac{1}{2}x + 2$$

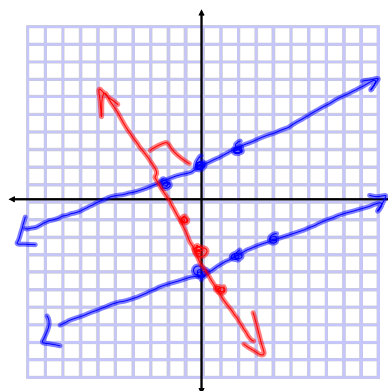
$m = \frac{1}{2}$ (0,2)

$$y = \frac{1}{2}x - 4$$

$m = \frac{1}{2}$ (0,-4)

$$y = -2x - 3$$

$m = -2$ (0,-3)



Parallel lines

have the same slope

Perpendicular lines

slopes are opposite reciprocals

HW

p66

27-37odd, 43-49odd

p71-72

9-11, 15-25odd

Classwork Day

p66

27, 33, 37, 43-49odd

p71-72

10, 11, 17, 19, 22, 23